

REMARKS

This request for reconsideration is being filed in response to the final Office Action dated December 7, 2006. For the following reasons this application should be allowed and the case passed to issue.

Claims 1 and 3-13 are pending in this application. Claims 1 and 3-13 are rejected. Claim 2 was previously canceled.

Claim Rejections Under 35 U.S.C. § 103

Claims 1, 3-5, and 9-12 were rejected under 35 U.S.C. 35 § 103(a) as unpatentable over Hayama et al. (U.S. Pat. No. 6,225,778) in view of Suzuki et al. (JP 11-345599) and further in view of Scott (U.S. Pat. No. 5,425,203).¹ The Examiner asserted that Hayama et al. disclose a battery pack comprising a flat battery cell, armor material, and positive and negative tabs extending outside the fused armor material. The Examiner acknowledged that Hayama et al. do not teach a plurality of offset through holes in the electrode lead. The Examiner relied on the teaching of Suzuki et al. of through holes in electrochemical element terminals to conclude it would have been obvious to incorporate through holes and the sheathing material of Suzuki et al. into the battery of Hayama et al. to increase the tensile strength of the cell. Scott discloses an apparatus for supporting plants to assist the plants in growing vertically. The Examiner concluded that it would have been obvious to incorporate the offset holes of Scott into the sheet type electrochemical element of Hayama et al. as modified by Suzuki et al. to increase the integral strength.

Claim 6 was rejected under 35 U.S.C. 35 § 103(a) as unpatentable over Hayama et al. in view of Suzuki et al. and Dasgupta et al. (U.S. Pat. No. 6,080,508), and further in view of Scott. The Examiner recognized that Hayama et al. as modified by Suzuki et al. do not teach at least two laminate packaging flat cells connected in series and/or parallel. The Examiner asserted it would

¹ Claims 1, 4, and 9-12; 3; and 5 are rejected in three separate rejections in the Office Action.

have been obvious to incorporate the parallel or series arrangement of Dasgupta et al. in the batteries of Hayama et al. as modified by Suzuki et al. because it is common to connect lithium battery cells in parallel or series.

Claims 7 and 8 were rejected under 35 U.S.C. 35 § 103(a) as unpatentable over Hayama et al. in view of Suzuki et al. and Haba (U.S. Pat. No. 6,465,986), and further in view of Scott. The Examiner noted that Hayama et al. as modified by Suzuki et al. do not teach at least two battery modules connected in series and/or parallel. The Examiner asserted it would have been obvious to incorporate the parallel or series arrangement of Haba in the batteries of Hayama et al. as modified by Suzuki et al. to provide alternative configurations with different ratings and/or capacity.

These rejections are traversed, and reconsideration and withdrawal thereof respectfully requested. The following is a comparison between the invention as claimed and the cited prior art.

An aspect of the invention, per claim 1, is a laminate packaging flat cell, wherein the laminate packaging flat cells comprise an electrode terminal lead that protrudes from the thermally welded portion in a protruding direction. A plurality of through-holes are provided in the electrode terminal lead in a position thereof contacting the thermally welded portion. The through-holes form first and second rows along a widthwise direction of the electrode terminal lead that is substantially perpendicular to the protruding direction, and the through-holes in the first row are arranged to offset to the through-holes in the second row in the widthwise direction when viewed along the protruding direction.

Another aspect of the invention, per claim 5, is a laminate packaging flat cell wherein an electrode terminal lead protrudes from the thermally welded portion. A through-hole is provided in the electrode terminal lead in a position thereof contacting the thermally welded portion. An end of the laminate film joined to the electrode terminal lead is folded on itself.

Another aspect of the invention, per claim 6, is a battery module, wherein electrode terminal lead protrudes from the thermally welded portion in a protruding direction. A plurality of through-holes are provided in the electrode terminal lead in a position thereof contacting the thermally welded portion. The through-holes form first and second rows along a widthwise direction of the electrode terminal lead that is substantially perpendicular to the protruding direction, and the through-holes in the first row are arranged to offset to the through-holes in the second row in the widthwise direction when viewed along the protruding direction.

Another aspect of the invention, per claim 7, is an assembled battery wherein electrode terminal lead protrudes from the thermally welded portion in a protruding direction. A plurality of through-holes are provided in the electrode terminal lead in a position thereof contacting the thermally welded portion. The through-holes form first and second rows along a widthwise direction of the electrode terminal lead that is substantially perpendicular to the protruding direction, and the through-holes in the first row are arranged to offset to the through-holes in the second row in the widthwise direction when viewed along the protruding direction.

Another aspect of the invention, per claim 8, is a vehicle comprising an assembled battery wherein electrode terminal lead protrudes from the thermally welded portion in a protruding direction. A plurality of through-holes are provided in the electrode terminal lead in a position thereof contacting the thermally welded portion. The through-holes form first and second rows along a widthwise direction of the electrode terminal lead that is substantially perpendicular to the protruding direction, and the through-holes in the first row are arranged to offset to the through-holes in the second row in the widthwise direction when viewed along the protruding direction.

Another aspect of the present invention, per claim 9, is a method for manufacturing a laminate packaging flat cell comprising forming a thermally welded portion on an outer periphery of the laminate film. An electrode terminal lead is coupled to the electrode plate protruding from the thermally welded portion in a protruding portion. A plurality of through-holes are provided in the electrode terminal lead in a contact portion with the thermally welded portion. The through-holes form first and second rows along a widthwise direction of the electrode terminal lead that is substantially perpendicular to the protruding direction. The through-holes in the first row are arranged to offset to the through-holes in the second row in the widthwise direction when viewed along the protruding direction.

Another aspect of the invention, per claim 10, is a laminate packaging flat cell wherein the electrode terminal lead protrudes from the thermally welded portion in a protruding direction. A plurality of through-holes are provided in the electrode terminal lead in a position thereof contacting the thermally welded portion, and the through-holes are arranged to prevent leakage of electrolyte linearly through a location of the thermally welded portion of the laminate film where the terminal electrode lead protrudes.

Another aspect of the invention, per claim 11, is a laminate packaging flat cell wherein the electrode terminal lead protrudes from the thermally welded portion in a protruding direction and a through-hole provided in the electrode terminal lead in a position thereof contacting the thermally welded portion. The through-hole is elongated along a widthwise direction of the electrode terminal lead that is substantially perpendicular to the protruding direction.

The claimed laminate packaging flat cells, battery module, assembled battery, vehicle, and method for manufacturing a laminate packaging flat cell are not obvious in view of the cited references because **the references have been improperly combined**. Contrary to the

Examiner's assertions, there is insufficient motivation to combine Scott with Hayama et al., Suzuki et al., Dasgupta et al., and Haba. Hayama et al., Suzuki et al., Dasgupta et al., and Haba are directed to **batteries**, while Scott is directed to an **apparatus for supporting plants**.

Clearly, batteries and plant supports are **non-analogous arts**. One of ordinary skill in the art of batteries would not look toward the plant support art to solve a problem related to batteries.

As explained in MPEP § 2141.01(a), "In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." *In re Oetiker*, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). See also *In re Deminski*, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986); *In re Clay*, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992) ("A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem."); *Wang Laboratories Inc. v. Toshiba Corp.*, 993 F.2d 858, 26 USPQ2d 1767 (Fed. Cir. 1993); and *State Contracting & Eng'g Corp. v. Condotte America, Inc.*, 346 F.3d 1057, 1069, 68 USPQ2d 1481, 1490 (Fed. Cir. 2003) (where the general scope of a reference is outside the pertinent field of endeavor, the reference may be considered analogous art if subject matter disclosed therein is relevant to the particular problem with which the inventor is involved).

It is immediately recognizable that Scott's apparatus for supporting plants is **not in the field of Applicants' endeavor**. Furthermore, Scott is **not reasonably pertinent to the particular problem with which the inventors were concerned**. As explained in the present specification, the present inventors were concerned with the sealing of laminate packaging flat

cells and preventing electrolyte leakage (page 2, line 14 to page 5, line 7). Scott is **not** concerned with preventing electrolyte leakage from laminate packaging flat cells. Scott is concerned with supporting plants so that they grow vertically. While Scott may teach that the offset holes provide an increase in integral strength, which provides additional strength to horizontal rods 36 and the base plate 12, the teaching of Scott is inapplicable to a laminate packaging flat cell. The electrode terminal lead of a laminate packaging flat cell does not support plants so that they grow vertically. The electrode terminal lead of laminate packaging flat cell is not planted in dirt and is not required to be a freestanding structure that has to support rods that extend horizontally above the ground to support a plant. Thus, the teaching of Scott would have been of **no** concern to one of skill in the art of batteries trying to solve a problem of electrolyte leakage from laminate packaging flat cells.

Scott is clearly **non-analogous art** and it would not have been obvious to combine Scott with Hayama et al., Suzuki et al., Dasgupta et al., and Haba to obtain the laminate packaging flat cells, battery module, assembled battery, vehicle, and method for manufacturing a laminate packaging flat cell, as required by independent claims 1, 5, or 6-11.

The dependent claims are allowable for at least the same reasons as the respective independent claims from which they depend and further distinguish the claimed invention. For example, claim 3 further requires a ratio of a cross-sectional area of the through-holes to a cross-sectional area of the electrode terminal lead ranges from 20 to 50%. This additional limitation is not suggested by the cited references, contrary to the Examiner's assertion.

In view of the above amendments and remarks, Applicants submit that this case should be allowed and passed to issue. If there are any questions regarding this Amendment or the

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application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. § 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

McDERMOTT WILL & EMERY LLP



Bernard P. Codd

Registration No. 46,429

600 13th Street, N.W.
Washington, DC 20005-3096
Phone: 202.756.8000 BPC:kap
Facsimile: 202.756.8087
Date: April 9, 2007

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as our correspondence address.**